

Early-Onset Parkinson's Burden has more than Doubled Worldwide Found in Study

Researchers collated and analyzed global, regional, and national data from the Global Burden of Disease (GBD) Study 2021, covering 1990 to 2021, to evaluate trends in the burden of early-onset [Parkinson's disease](#) (EOPD) among people aged 20 to 49 years across these geographical scales.

Study findings identified significant increases in incidence, prevalence, and years lived with [disability](#) (YLDs) across the three decades under investigation, revealing that the global burden of EOPD has more than doubled over this period.

The study further elucidates distinct geographic hotspots in EOPD incidence, an expanding gender gap indicating higher estimated burden among males, and a moderate country-level association with regional agricultural pesticide use, underscoring the need for additional research and targeted [public health](#) interventions to better understand and reduce the disease burden across regions.



Study

The present study aimed to enhance public health [knowledge](#) of EOPD by first estimating the population-level burden of the condition across distinct geographic scales. The study leveraged data from the GBD 2021 study to assess EOPD patterns across 204 countries and territories from 1990 to 2021.

The study's analyses specifically focused on individuals included in EOPD estimates between the ages of 20 and 49 and evaluated three primary endpoints: 1. Incidence (number of new estimated EOPD cases per year), 2. Prevalence (number of estimated [EOPD patients](#) alive during the years under investigation), and 3. Years lived with disability (YLDs).

These primary endpoints were tracked using the estimated annual percentage change (EAPC) in GBD data over the study period. To further understand the potential influences of economic development on disease distribution, study outcomes were cross-referenced against the [Socio-Demographic Index](#) (SDI). SDI is a composite marker measuring regional fertility rates, educational attainment, and per capita income.

Finally, to elucidate the potential impacts of environmental changes and policy implementation on disease distribution, GBD data were matched against the Food and Agriculture Organization

of the [United Nations Statistical Database](#) (FAOSTAT) to calculate total pesticide application per area of cropland.

Statistical analyses primarily comprised mathematical decomposition models, which were used to isolate whether population growth, population age structure, [age-specific prevalence](#), or disease severity were the dominant drivers of the changing disability numbers.

Results

The findings were consistent with a [marked escalation](#) of EOPD over the past 31 years, revealing that incidence rose 187% from 28,267 in 1990 to 81,047 in 2021. Prevalence estimates mirrored incidence metrics, rising 154% from 190,487 to 483,872.

When standardizing for [age](#), the study found that incidence increased from 1.46 to 2.35 (EAPC = 1.42%), prevalence from 10.03 to 14.00 (EAPC = 1.09%), and YLD from 1.65 to 2.27 (EAPC = 1.05%) per 100,000 individuals globally.

The study further revealed a marked [sex difference](#) in PD's demographic burden, finding that men were approximately 1.5 times more likely to develop EOPD than their female counterparts. Specifically, the study analyses estimated male prevalence at 16.74 per 100,000 versus 11.23 for females.

Geographically, middle and high-middle SDI zones were observed to experience the fastest EOPD growth rate, led by East Asia and Andean Latin America. At the national level, Peru, Bolivia, and [Ecuador](#) logged the highest age-standardized rates, while China and Norway showed some of the fastest national upward trends; China's incidence EAPC was 2.55%.

Ecological correlation analyses indicated that EOPD rates correlated positively with total pesticide use per cropland area ($\rho = 0.41$, $p < 0.001$ for incidence; $\rho = 0.34$, $p < 0.001$ for prevalence). Decomposition analysis showed that while [population growth](#) drove rising disability metrics in low-income zones, escalating underlying prevalence rates were the primary drivers in middle and high-middle SDI regions.

Conclusion

The present study establishes EOPD as a growing global public health burden that varies by socioeconomic development and correlates with [pesticide](#) use. The distinct correlation with regional agricultural practices underscores the need for further investigation, improved exposure monitoring, and safer occupational environments, rather than confirming a direct causal effect of pesticide use.

Because the analysis relied on modeled GBD estimates and country-level pesticide-use data, the findings may be affected by [underdiagnosis](#), underreporting, regional data quality differences, and ecological confounding. Therefore, the pesticide findings should be interpreted as associations rather than causal evidence.

Source:

<https://www.news-medical.net/news/20260701/Study-finds-early-onset-Parkinsons-burden-has-more-than-doubled-worldwide.aspx>